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The Prevention of Swarming—Questions.

[We received the following letter from Dr. Miller, in which he asks "The Dadants" some questions. Upon its receipt, we forwarded the letter, and, in due time, there came back with it a reply from both Mr. Chas. Dadant and his son, C. P. The Doctor's letter and the two answers are as follows:—ED.]

MESSRS. DADANT & SON:—You have done what you could to embitter my life by keeping bees that would not swarm, or by keeping hives from which bees would not swarm. At any rate, you report only from three to five colonies out of a hundred as swarming, and you attribute it chiefly to the large amount of room you give your colonies. This year I gave to most of my colonies 16 Langstroth combs, making, I think, about one-third more capacity than you give to your colonies. Most of them were reduced to one story with eight frames at the time of putting on supers, but before being so reduced a number of them made ready for swarming, and of those left on 16 frames the large majority decided to swarm.

It might be said that being in two stories the bees did not work in both, but that is a mistake, there was brood in both stories, and the queen went freely from one story to another. Now, why do my bees deport themselves so differently from yours? Is it "locality," or is there something in the shape of the hive? Is it some witchcraft you brought over from France? If the latter, will you teach me the secret if I come down to your place?

Envirously yours,
C. C. MILLER.

CHAS. DADANT'S ANSWER TO DR. MILLER.

There is nothing in discordance with what we hold to be the habits of the bees, in the above facts as described by Dr. Miller. The frames of our large hives have about 100,000 cells; those of the 8-frame Langstroth about 60,000, or two together about 120,000, but as soon as the crop begins we add one super containing about 50,000 cells, and when this is a little over half full we add a second one, if the season is favorable, thus raising the capacity of the hive to 200,000 cells.

The difference in the quantity of swarms is not due only to those successive enlargements of the hive. A colony, in a state of nature, always builds its combs from the top down, and continues them downward without interruption, without leaving any space open. The queen may thus run over them without obstacles or irregularities. It is not thus with a double-story hive, and for that reason the queen always hesi-

tates more or less either to go up into the upper tier or down again in the lower. The upper combs are separated from the lower, by the top-bar of the lower combs, the empty space, and the bottom-bar of the upper combs. This space compels her to hunt around in the dark, in a way which is not according to her instinct.

In a large, single-story hive the case is different. She finds in the brood-chamber the entire space that she needs.

In our apiary of about 80 colonies, here at home, we have had but two swarms this season. We should gladly welcome Dr. Miller, and show him how our bees behave with our methods.

In a criticism on page 391, Mr. Doolittle, speaking of large hives, writes that it is useless to have hives full of brood and bees in the month of March, for it would be as if one hoed the potatoes before they were up. We do not know where Mr. Doolittle has seen hives full of brood and bees in March, probably not in our latitude, which is about the same as his.

It is just the other way. In either large or small hives, one usually does not get brood and bees as early as one would wish. Every season we try to induce our bees to breed early, by giving them flour before the pollen comes.

I would add that I should be very glad to find a way to get still stronger colonies than we usually have in April, for there is a great deal of fruit-bloom every year, and at that time there are but few colonies, even in large hives, that are sufficiently strong to harvest more than is necessary to breed from.

CHAS. DADANT.

C. P. DADANT'S ANSWER.

Dr. Miller is either trying to poke fun at us, or he is wanting to bring us out with our hobbies. I rather think the latter is the case. Although Dr. M.'s motto is "I don't know," we suspect him of knowing a great deal more than he lets on, and we think that he is not nearly so ignorant as he would let us believe. Well, Doctor, we will take you as if in dead earnest, and will "talk back."

Right here, in the home apiary, we have about 80 colonies just now. We have had two swarms, and think we have lost another. Mr. Dadant, senior, has had the task of watching the bees, and he seems to think that he is wasting his time.

Here are two colonies side by side, both apparently very strong. We opened their hives about a week ago, and found one of them with about five extracting-frames full of honey, the center ones partly sealed, but the other nine frames nearly dry. The supers are of the American size, and hold 14 half-frames. The colony is evidently expecting to fill the entire width by and by, but their restricting themselves to a certain number of combs shows that they do not feel crowded, and are comfortable. There are no idle bees on the outside.

The other hive has a large cluster hanging on the outside

(elles font la barbe), literal translation, "they make a beard"—a very explicit way of putting it, if it is French. An examination of the inside reveals less honey than the other colony, but that honey is scattered all through the super from one end to the other, and not a single cell sealed. Why, then, do they hang out, since they have room to spare, their super having really less honey than that of the other colony? My dear, sir, it is very plain—they are crowded. Their hive, although very large, and their large super, are both inadequate, or perhaps they suffer more from the heat, owing to being more exposed to the sun. At any rate they cannot all stay inside. We will try one remedy first. We take one of the entrance-blocks, and raise the hive from its bottom, in front, placing the block under the edge of the hive. This gives them a good chance to ventilate the entire hive from several sides. No tight bottoms with us, you understand.

Two days after we examine again. That hive still has a number of bees on the outside, while the other has not an idle worker. It won't do to let it "make the beard" so long, and we will add another super. Raising the first one, we find that there are only about 15 pounds of honey in it, and that they have made but little headway. We now have two supers, or room for 120 pounds on this hive. This morning we examined it. They have honey in both supers, and, I am glad to say, not a bee is idle—no more barber needed. I have not the shadow of a doubt that you will agree with me when I say that this colony would have been very likely to swarm had we not done as we did. You will also agree that, if it does swarm, there will be nothing astonishing about it, because, as we all know, when they once have the swarming-fever there is no cure except by swarming.

Dr. Miller tells us that he put a number of colonies on 16 frames, that is, two 8-frame brood-nests, and that a number of them made ready for swarming. We would have to know just when those additional hives were put on to have an opportunity of ascertaining what is the probable trouble. From what the Doctor says, they must have laid eggs and reared brood quite plentifully in those two stories, and the colonies must have been about one-half more populous than those on eight frames. They must have needed, then, nearly twice as much surplus room as the others, and yet with the floor space of an 8-frame hive there is only room for 24 sections in one tier. It is true that you can pile several stories on top of each other, but this is not usually done. How many did you put on? Then the ventilation is much more difficult.

I remember some 25 years ago when we were still using the little square 6-pound honey-box, with glass on four sides, and an inch hole at the bottom, I often wondered why the bees remained idle on the outside and not a bee would go into those boxes. It was the heat and the lack of ventilation that hindered them. We had a very good chance of making sure of this when we began using the section honey-box, thanks to D. L. Adair, of Kentucky. His section-box was too large, but it was a great improvement on the glass box, for the bees had much better access to it.

Doctor, put the supers on, but put on enough to give them a good chance. The great trouble in producing comb honey is, that you do not wish to put on so many that they may leave a lot of them unsealed, and it is a much finer task to judge of the proper space to give than when you expect to extract it, for in the latter case it does not matter a particle whether the honey is sealed or not, so it has been well ripened.

But I wish to say much more on this subject, and will ask leave to put off the balance till another day.

Hamilton, Ill., June 24.

C. P. DADANT.



Every Present Subscriber of the Bee Journal should be an agent for it, and get all others possible to subscribe for it.

Value of Bees to Apricot Growers.

BY DR. E. GALLUP.

This season has been a very peculiar one for California. Our apricots usually bear full crops every other year, and this should have been the bearing year, but owing to the unusual cool, dry weather while they were in bloom, the crop is extremely light in many places, and in some localities almost a failure. Now this could have been remedied. How? Why, by having bees to fertilize the bloom.

This article is suggested by the complaint of a friend. He had a large colony of bees take possession of the roof of his tank-house some time in April, and now he is in a sweat as to how to get rid of them, as he says they are a terrible nuisance on the apricots while drying, etc. That they do work on apricots while drying, especially over-ripe ones, is a fact which I am not going to deny. Now, this friend has a very light crop of apricots, and is very anxious to make the most of them, and I want to whisper in his ear a trifle:

Friend S., providing you had four or six colonies of bees to fertilize your apricots while in bloom, you would have had a heavy crop, and knowing that the bees were the cause of the heavy crop, could you have begrimed them the small quantity of juice they would have taken while they were drying? You discover the bees on the drying-trays, and do you not *imagine* that they are doing a great sight more harm than they really are? You are a pretty close observer in most cases, please look into this matter thoroughly.

Now for facts: At the time the trees were in bloom, it was so cool that bees could fly but a short distance from their hives, and only a few hours in the day. I notice some 20 trees on First street literally loaded with nice fruit, while a short distance from them the trees are almost bare of fruit. There is a cause for this, and *what* is that cause? Why, there are two large colonies of bees in the cornice of a house adjoining the lots where those trees are.

I met a friend three days ago; he was making preparations for apricot drying. "Well, how is your crop?" I asked.

"I never had a heavier crop, or a finer one, and as my neighbors have only very light crops, and some of them almost none at all, I expect to get a good price for mine."

So you see this friend was in extra-good spirits. Why does he have such a fine crop? There must be a cause, and *what is it?* Why, a widow has some eight colonies of bees in box-hives just across the street, only a few rods from friend H.'s apricot trees. Now, in all probability this same man will find fault with the widow's bees for taking a trifle of the juice while his fruit is drying!

Let the bees have a trifle for their labor. The laborer is worth of his hire; muzzle not the ox that treadeth out the corn.

Santa Ana, Calif., June 20.



Fifteen Years' Experience in Bee-Keeping.

BY MRS. SALLIE E. SHERMAN.

(Continued from page 418.)

I was the first person in this part of Texas, so far as I know, who had sent for and Italianized their bees, and had them in movable-frame hives, with section-honey for sale. It attracted a great deal of attention, and many thought if I could make such (to them) wonderful success, that they, too, could do likewise. Many came to see me and to talk bees, for miles around. Some of them bought bees of me, paying me \$12.50 per colony, and had me order hives, smokers, veils, etc., for them. There were, however, only a few of them that made a paying business of bee-keeping. It, as you know, is a business requiring close attention to minor details,

which a great many people are not willing to give, hence their failure.

My son and I did quite a good deal of transferring bees from box to movable-frame hives. In many directions for miles around we had calls for this kind of work. I remember on one occasion a man happened in while we were in the midst of transferring. Of course, before beginning we had drummed on the hive and frightened the bees until they had filled themselves with honey, so of course they were very docile, and almost as easily handled as flies on a cold morning would have been. He looked on in mute astonishment, and wanted to know if we hadn't mesmerized them? When we told him no, he was a "doubting Thomas," and did not believe us. He went off and told that we couldn't fool him that way, for, said he, "They either gave them something to stupefy them, or else they conjured them." Whatever the "conjuring" meant, I am sure I don't know, for I had never heard it used except by negroes.

As the years rolled past, I was all the time reading and studying everything I could get my hands on that treated upon the subject of bee-culture. I subscribed for the Bee-Keepers' Magazine, and eagerly devoured its contents; but it did not satisfy me. Its visits were too far apart. I then took the American Bee Journal and the Apiculturist; got "Bees and Honey," by Thomas G. Newman, and "A Year Among the Bees," by Dr. Miller; "Bee-Keepers' Guide," by Prof. Cook; Alley's "Handy-Book, or 30 Years Among the Bees;" "Blessed Bees," by John Allen; Gleanings in Bee-Culture, and "A B C of Bee-Culture," by A. I. Root; Dr. Phin's "Dictionary of Apicultural Terms," etc. I hardly know all that I have read, for when I would get through a book there was almost always some one who wanted it; I would let them have it, and buy another from a different author. By this means I read more than perhaps I otherwise would have done. I have but few standard works on hand at this time, for reasons above mentioned, but I have a good-sized trunk full of journals.

I finally decided that I could get more honey and manage it more easily by running more for extracted and less for comb honey, so I sent a special order for 20 top stories for the American hives, to run for extracted instead of comb honey. I had them made the same as bottom stories, with the exception of a bee-entrance which was not cut out. These I set on top, after having filled them with heavy comb foundation. Thus, the frames were interchangeable, which I found to be very convenient.

A little later on I ordered 100 Eclectic hives, 50 of which I used for extracted honey, and the others were ordered for a gentleman in an adjoining county. He, too, was very enthusiastic on the subject of bee-keeping. He said before he got bees and used so much honey that he always had from \$50 to \$100 doctor's bills to pay each year; afterwards none at all, until his family took the measles; they then lost one son. Both he and his wife told me about how very badly she once had erysipelas, which extended half around her body, several inches wide, from which she had been suffering the most excruciating pain for several days and nights without obtaining relief, notwithstanding there were several physicians attending her. Finally, her husband asked the physicians if they had any objection to his making and applying a plaster composed of honey and flour. They replied no; that if it did no good it certainly would do no harm. They assured me that in less than 15 minutes after it was applied she was perfectly easy, and dropped off to sleep, and in three days it was healed over so that she could dress herself and get around the house. I relate this, thinking it might be of use to some suffering human being. It is certainly worth remembering, and given a trial in case one is similarly afflicted.

I have received orders and shipped bees hundreds of miles in various directions over the State—I mean full colonies. I

quote a few lines from Mr. Wm. Little (now deceased), formerly of Hutchins, Dallas county, Tex., dated July 4, 1884:

"DEAR MRS. SHERMAN:—I am glad to report to you that the bees, etc., you shipped me arrived in good condition. You certainly did a most excellent job in packing, etc., and I believe they would have gone across the continent by rail in good order and condition. You fixed them up so nicely and well. I am delighted with them, and they are doing splendid work. I prepared and set the bees in a good place, made good shade over them, and they went to work at once, and seem to increase in numbers and working force every day.

"WM. LITTLE."

I always guaranteed safe arrival and full satisfaction in every case. I never had a customer that I failed to satisfy.

I learned a great deal from my observatory hive, which I kept all through the working season with one frame of bees, brood, etc., in my gallery, where I could see and study the inside workings of a full colony, so to speak, at any and every leisure moment I had. I took great pleasure in showing it to my friends when they visited me. I also had it on exhibition at our county fairs, and at many farmers' institutes, which I attended. In this way I have shown queens to thousands of people, many of whom had never seen one before. I was asked on one occasion to show a lady the "queen's throne." Speaking of this reminds me of an incident that occurred at Chicago, while attending the World's Fair and bee-keepers' convention. Never having had the pleasure of meeting Mr. G. M. Doolittle, and on being shown his bees that were on exhibition, I asked for and obtained permission to get up on the platform so I could see them better. I watched my opportunity and caught a drone, and then a worker-bee; then in company with a bee-keeper from Colorado, we went walking around on a tour of inspection amongst the many bee-fixtures there on exhibition. Presently we met a large Pennsylvanian, who began talking bees; noticing the drone I held by one wing, he said:

"Them's the kind of bees we have down in our State, and I'll tell you they haint made no honey there in several years."

I asked him if he wasn't mistaken in the kind of bees.

"No," said he, "them's the kind, shore."

The bee-keeper and I laughed, and told him that that was a drone.

"I don't care if it is, them's the kind we've got down there, shore, and they haint made no honey to amount to anything in three or four years."

We told him that we were not surprised at all at their failure, if that was the kind they depended on for gathering and storing the honey.

I killed the worker-bee as soon as I caught it, but still had it in my hand, and showed it to him, and told him that that was the kind of bee that stored honey in Texas.

"Why," said he, "that is nothing but a gad-fly!"

I finally killed the drone and wrapped the two together in a little piece of paper, and brought them home with me. In looking over some papers, etc., a few weeks ago, I came across them, or rather I opened the paper in which they were, and found the dried shells or skins and half a dozen very queer-looking, lively little insects, different from anything I had ever seen, which I suppose had devoured the bees.

Bell County, Tex.

[To be continued.]



Alfalfa—Cleome—Sweet Clover—Something About Honey-Flows.

BY R. C. AIKIN.

Alfalfa is thought by many to be a sure yielder. Even some of the writers from the alfalfa districts have been guilty of giving the impression that it yields the whole summer through. I have before this told the public, through the api-

cultural press, that the alfalfa honey-flow was not one long-drawn-out, all-summer flow. I have now been six years in a region where the plant is grown very extensively, and I must say that I find it about as some other plants in regard to reliability.

The season of 1890 the flow was very rapid at first, and continued for about 50 days. In 1891 it was not so rapid, but continued about the same time. In 1892, if it had not been for red clover we would have been almost without surplus. In 1893 it was about like 1892, the flow lasting only about two weeks, and mostly from red clover. In 1894 alfalfa again yielded fairly well, giving us about 40 or 50 pounds in a two or three weeks' flow. But 1895 was the poorest in many years, though the bloom was fine, and I thought promised the best in the six years. Thus, alfalfa has practically failed to give a surplus three years out of six.

I consider alfalfa a fine honey-plant, and the honey of a quality that is hard to excel. I believe, too, that under irrigation any plant will be a little more certain to yield some nectar, though the alfalfa is subject to the same influence (whatever it is) that keeps other plants from secreting nectar.

That long-drawn-out bloom is to some extent a myth. In this part of the country it begins to bloom about June 15 to 20, and, if left to grow on at will, continues to put forth fresh bloom for six or eight weeks, then gradually ceases, unless, like any of the clovers, it takes a second growth. This second growth will bloom quite profusely, but I have never known it to yield much. Just like red clover, it will grow a second crop when the first has been cut for hay, but I have not found this to yield much.

Alfalfa grows more rapid, larger, and more woody than the red clover, being practically between the red and sweet clovers, and the farmers aim to cut it just as it begins to bloom. I have seen many hundred acres just beginning to get nicely into bloom, and the bees just getting started on it, when down would go the whole for hay. Happy is the apiarist who lives where alfalfa seed is grown, or where the farmers are behind with their work. Ditch-banks, fence-rows, roadsides, and nooks and corners are frequently a good share of our dependence for pasture. Last year was wet for this country, and many farmers were behind with their work, letting much of the first crop get into full bloom, yet with all the fine outlook the flowers would not "give down." Many said it was too wet, but I have seen good flows from heart's-ease with much more rain. Yes, and from white clover, too.

The much-famed Rocky Mountain bee-plant (cleome) is tricky, too, and no more to be depended upon than the others. I do not know what sweet clover will do. The poor plant has a hard time of it. It tries hard to live, and succeeds to some extent, but the farmers fight it as the worst of weeds. Few localities have enough left to give it a fair test. I think both sweet clover and cleome are good, and would help out most likely when the other sources fail.

I have for years eagerly read what has appeared in the journals on the subject of planting for honey. At this date I am of the opinion that one may plant, with profit, if the crop be of value for other purposes; but to plant for honey alone, or to plant out of season to lengthen the flow, I have very little hopes of success. My observation is that in good years plants will yield *some* out of season; but when we get but little *in season*, the out-of-season bloom gives nothing. By in and out of season I mean the regular or natural time for a particular plant—or by late sowing, etc., to get it to bloom at some other season.

We discuss the whys and wherefores of these matters, and offer wise counsel; but, after all, what can we do? The Power that made all these wonderful things in Nature can and does manipulate them as He pleases. Scientific research to find out the methods in Nature by which these things are ac-

complished is interesting, and may be rightly used; but if we knew all the details of His methods it is not in the least probable that we could avert the disaster that overtakes us. Does not all sacred and profane history teach us that if we live and do as becometh brethren, then our land bringeth forth in plenty; but when greed and gain are the prevailing motives we are brought into straits, and immediately begin to look elsewhere than to our own selves for the cause?

Loveland, Colo.



Feeding Back—What Becomes of the Feed?

BY HON. R. L. TAYLOR,
Superintendent of the Michigan Experiment Apiary.

Feeding bees for profit, i. e., feeding back honey which has been extracted, for the purpose of producing comb honey, which is a more valuable article, is a very complicated matter, if the probability or degree of profit to be derived therefrom is alone considered. So many items which are unknown qualities enter into the problem that it is not to be wondered at that some even of the most skillful apiarists have been unable to realize a financial success. But others have been entirely successful, and it is hardly necessary to say that a negative result has comparatively little weight when confronted with a case of actual success, for if all the circumstances existing in the latter case had had place in the former the result must have been alike successful. Failure where there has been success proves that the only requisite to general success is the discovery and application of the appropriate conditions.

While the exact extent of the bearing of these several conditions is to a considerable degree uncertain, their tendency is in most cases tolerably well understood, though there is a difficulty still in some particulars in determining whether they are the best possible or not; as, for instance, the characteristics of the bees of a particular colony which is to be made use of in respect to persistent energy, comb-building, etc. These and some other points cannot always be infallibly determined without an actual practical test.

Among the more important points to be considered in order to induce the most favorable conditions are the following:

1. The character of the bees to be employed. There is a wonderful variety in the character of the bees in the different colonies even in the same apiary and of the same race. This difference shows itself in many ways, especially in the degree of excitability, in smoothness of combs built, in the whiteness of the cappings of comb honey, in energy and activity, and in the disposition to cling to the brood-chamber, to crowd it with honey, and when that affords no more room, to cease labor rather than to overcome the disinclination to pass beyond the limits of the brood-nest into a surplus apartment above. In selecting bees to be employed for feeding back, no point is more important than that those should be chosen that enter willingly upon work in the supers. The Italian race is very defective in this respect, while the black or German race or crosses in which black blood predominates are superior, though even among these judicious selections may be made with great advantage.

2. The character of the queen. The pertinent point here is that the queen should be prolific, not that prolificness is specially necessary after the feeding has begun, but unless she is so the colony will not have the numerical strength desirable, and the existing brood will not be great enough in amount to furnish the required reinforcements as the work progresses and the older bees perish.

3. The season. That must be early—the earlier the better after the advent of summer weather. In selecting this time we gain in two ways; first, we avoid as far as possible the disposition of the bees to store honey in the brood-chamber, a disposition which ever increases as the season wanes, and, second, we secure the great advantage of having the work done during the hottest weather during which alone bees produce wax and build comb most economically. Of course, the work must not be undertaken while honey is being gathered from the fields. The opportune time is the interim between the early summer and the late honey season which begins generally about the 20th of July at the failure of the basswood bloom.

4. The size and condition of the brood-chamber. For obvious reasons this should be small, because, otherwise, an opportunity is furnished for the production of a large amount of brood whose value beyond a certain limit cannot be great, and whose production must cost the consumption of an indefi-

nitely large amount of the honey fed, and also because, otherwise, room is given for the storage of a large amount of honey where it is of less value than it was before it was fed. The capacity of five Langstroth frames is about right, or of one section of the Heddon hive, and this latter is better because this hive is so shallow that that amount of comb occupies a space equal horizontally to that occupied by the sections in a section-case, so that the heat and odor rise equally from the brood-chamber to all parts of the section-case. This is an advantage, especially if there should be cool weather before the feeding is finished. The combs used should be such as are filled with brood so far as possible, and the residue with honey, thus the bees are prevented as far as possible from using or storing the honey so as to entail a loss.

5. The condition of the sections to be filled should be considered. The farther the comb in them is worked out, the more honey they contain when they are given to the bees to be completed, the greater will be the relative profit. On the other hand, the less they contain, and the less work done upon them, the less the profit, if, indeed, it does not pass the vanishing point. The liberal feeding contemplated will turn a great army of quiet bees into active laborers, and will induce the rearing of increased amounts of brood, and growing brood and active laborers require a large amount of food—we don't know how large, but probably more than one could guess, so the economy is seen of aiding the bees so far as we can by giving them the best possible comb to fill, as in other ways, so that the work they have to do may be finished at the earliest possible moment, that the wages they exact in the shape of food may be stopped. The matter of the amount of honey required for food while the bees are in a state of activity, and for the production of the wax needed to carry the work to completion is one of very great importance, as may be seen from the details of the results of an experiment which are given in the accompanying table.

	Weight Aug. 10. in lbs. and ozs.	Weight Sept. 15. in lbs and ozs.	Weight Nov. 26. in lbs. and ozs.	Total amount fed in lbs. and ozs.	Dry sugar repre- sented.	Comb honey pro- duced.	Gain in weight of brood-chamber.	Amt. consumed.
No. 1	51-8	73-12	97-12	213-4	122.2	46-7	22	53-13
No. 2	57-8	83-4	67-12	137-8	78.3	41-6	25	11-6
No. 3	55	84	74	127-8	73	24-5	27	19-11

The experiment referred to was made for several purposes; one of which was to show the results that may be expected to follow a disregard of some of the principles stated in the foregoing. Not having a supply of honey for the purpose, I used granulated sugar, which was made into a syrup by boiling a certain amount of water and adding an equal quantity of sugar by weight. In the process of preparation there was an evaporation such that the weight put in was 14.65 per cent. greater on the average than that taken off.

The feeding was begun the 10th of August last, and required four and a half weeks for its completion. The three colonies employed were dark hybrids of more than the average strength of the apiary. Each colony had a brood-chamber consisting of a two-section Heddon hive with a fair amount of brood for that season in a year of great dearth of bee-pasture. The sections to be filled were all furnished with foundation only, and one case was given to one of the colonies, and two to each of the others. The feed was supplied to the bees in pans placed above the sections, and was given as rapidly as it could be taken. The greatest care was taken in keeping a record of the amount fed, the amount given each time being weighed separately. During the greater part of the time when feeding was going on, there was a moderate amount of honey being gathered, sufficient, however, to supply most of the apiary with abundant winter stores, notwithstanding previously the danger that most of the colonies would have to be fed for winter seemed imminent, and many stored a considerable surplus in empty combs. It cannot of course be determined how much honey the colonies under consideration gathered. Probably not nearly so much so as they would have done had they not been receiving feed, and judging from the results, one of the three gathered much less than either of the others. If this was so, it resulted from the difference in the characteristics of the bees of the different colonies. All three certainly brought in large quantities of pollen.

It will be noticed that in the table the weight of each brood-chamber before and after the feeding is given, and to

that is added the weight of each at the time of putting them into winter quarters. In the next column appears the weight of the liquid food given each, and that is followed by figures showing the amount of dry sugar that went to make up the syrup; then after the weight of the honey produced and the gain in the weight of the brood-chamber, comes, last of all, the amount of sugar which has disappeared entirely, and this upon the assumption which is a somewhat violent one, that one pound of dry sugar made but one pound of ripened syrup. But if we assume that a pound of sugar made 1 1/4 pounds of sugar-honey, the figures showing the amounts consumed would be greatly changed, and, disregarding fractions, we find No. 1 consumed 84 pounds, No. 2, 31 pounds, and No. 3, 38 pounds.

The question—What has become of these large amounts?—is a puzzling one, but our ability to answer it at least sufficiently to enable us in practice to greatly reduce them is the point upon which the answer to the question—Can feeding back be made profitable?—must turn. As bees have never been suspected of casting good syrup out of the hive we may assume that it was all used legitimately in carrying on the work of the hive, but for different purposes, as it answers for food, fuel, and building-material. It would be rash for one to undertake to say for which of these purposes the greatest amount was used, but probably if the facts could be got at it would be that for food, if we include under that head all that is used for the nourishment of the brood as well as that portion of the honey consumed by the mature bees, and needed to make, with the pollen consumed, a balanced ration. This disposition of the matter would leave the honey or syrup consumed by the bees more than that to be divided and ascribed to the other two purposes, that of creating heat and that of producing wax.

The only point that remains to be noticed in this matter is the method by which the expenditure of material for any of the purposes above defined may be curtailed.

The expenditure for food pure and simple could be judiciously decreased to any great extent. That of the mature bees could not be decreased to any great extent. That of the mature bees could not be decreased at all (if the work were done at that season for the same length of time), and that of the brood only to the extent the brood itself might be safely decreased. As bees at the season mentioned are seldom inclined to rear much more brood than is necessary to bring the colony through in good condition to the next spring, not very much could have been saved here in this case, but all that could have been done in this direction would have been accomplished without danger of curtailing the brood too much by allowing each colony a brood-chamber of a single section instead of two. Earlier in the season when bees are inclined to give more attention to the rearing of brood, such cutting down of the brood-chamber would without question effect a large saving in the expenditure of food. The contraction of the brood-chamber would prove very effective in other ways, especially in the saving of honey as fuel, as the size of the space to be warmed would be greatly lessened, and a much greater percentage of bees would be forced into the surplus-cases where heat is especially needed while the working of wax is going on; and, too, the amount of the food given stored in the brood-chamber would be cut down about one-half. (See account of my feeding back experiment made in 1893.)

Again, the choosing of the season from the middle of July to the middle of August would be an advantage in all ways, for the heat of the sun would serve largely to keep up the temperature which must otherwise be maintained by the consumption of fuel, the amount of food would also be decreased to some extent, and, as comb is made thinner, and so goes farther in hot than in cool weather, a substantial economy in the saving of building-material would result.

I shall only continue this to mention one other point already referred to, which is hardly excelled by any in importance as an element in securing the highest success, viz.: the providing the bees with sections containing comb well worked out and partly filled with honey, such as are usually plentiful at the close of the early honey harvest, instead of empty sections. This is an advantage in many ways. The combs are in condition for the process of filling to proceed at once, and comparatively little wax needs to be produced, so that the work is greatly hastened, and the consumption of honey saved in every direction. The honey, also, in such sections, which is unsalable in that condition, is doubled in value by the completion of the sections; indeed, without the motive of bringing such sections to a salable condition, feeding-back should seldom be undertaken.—Review.

Lapeer, Mich.

Specialty in Country Life Considered.

BY F. L. THOMPSON.

On page 97, Mr. Abbott, in commenting on my statement that general farming, as it actually exists, stultifies the mind, says, "It is no more degrading to milk a cow," etc. I did not say it was. Nor was the faintest intimation of such an idea intended in that article or in my thoughts. "Stultify" and "drudge" do not imply moral debasement.

"If farm life is so stultifying to man's intellectual life, why is it that some of our best and ablest men come from the farm?" To get away from it, of course. That is where they show their sense. They want specialty.

"There is an intelligent way to milk a cow, clean a stable," etc. Agreed; but when such work continues all day and every day, the mental part of the labor becomes infinitesimal. Result: Mental starvation, none the less real because often unconscious.

"I find recreation in all of these things, and education, too." One begins to wonder why Mr. Abbott is not farming. There is nutriment in a lump of dirt, but we do not choose to eat clay on that account.

"If it were not for them, I should soon have to cease all intellectual work." I am not talking about recreation, or the daily constitutional, but about business. Earnestness and enthusiasm in the distraction of half-a-dozen equal occupations cannot be attained in nearly the same degree as in one. Subordinated variety is the spice of life.

"No necessary work is drudgery unless we make it so." I have also heard it said, "Be virtuous and you will be happy." I don't deny it. All that the quotation from Mrs. Garfield amounts to is this: When there is an "inevitable necessity" there is room for any amount of sermonizing. But when there is not an inevitable necessity there is a choice, and that choice is governed by principles.

"The most disagreeable work may become a certain source of enjoyment, if looked at in the right light." Just my sentiments, and the "right light" is furnished by specialty. The sense of fresh development, the quickened sympathy with the relations of things, the thorough comprehension of what is to be done, and other influences which can hardly be expressed in language, combine to make work of any kind a pleasure. These influences in non-specialty are far inferior. To say that they make no difference is to shut one's eyes to the facts.

We work for the sake of achieving objects, not primarily for work's sake, and we might as well say so. That work is a blessing, is not the main fact.

Drudgery is not the work itself, but is a mental condition, the protest of Nature against this false estimate of work. It is almost a pathological fact. We do not cure dyspepsia by preaching. To bear up against adverse circumstances is one thing; to control circumstances, another. Mr. Abbott confuses the two.

I agree with all that he says or quotes about disagreeable work; but I consider his application of it a fundamental mistake, one that has already caused untold misery. A certain amount of drudgery to be overcome is a tonic; an excess is deadly. Much of our preaching is unconscious selfishness. We forget half of our own experience, ignore the rest, and because we would be so comfortable if others felt as we now do, we infer they ought to.

The majority think it is enough to exercise the mind as we do the body. Like animals, they eat, drink, work, and are merry, and don't bother themselves about other than receptive thought more than they have to. As long as they are not conscious of mental hunger, they think they are not starving. Others have found that different laws govern the exercise of the mind; that to be healthy, it must be progressive. The former class may turn work into comfort; but this one aims to turn work into fresh achievement. "The best work," says a recent editorial in *The Dial*, "is not, as a rule, done by those who toil for the greatest number of hours or days, but rather by those who so shape their lives as to maintain the working period at its highest potency."

On page 633 (1895) Mr. Abbott mentions several things which "should fill to the brim the cup of human happiness," but a growing mind is not one of them. If I had not read his ideas on page 590 (1895), which I think cannot readily be carried out on non-specialty lines, I would be tempted to say that he seems to be safe with the majority.

The restlessness of the second class is exceedingly irritating to the first one, which cannot chew its cud in peace. It is not backward about giving No. 2 a piece of its mind. It says, "You are not like me, therefore you are a fool," or, "You shall not be different from me. I will not have it;" or

when, as sometimes happens, aspiration takes the form of education, "Oh, want to be a gentleman, do you? think yourself too good for common folks;" by which deliberate falsehood, when directed against natural and worthy instincts, there is no telling how many lives have been embittered.

Mr. Abbott has come too near the implication of something like this, no doubt from good motives. But I wish he would stop and think what it leads to. Some, undoubtedly, are low enough to be "above" cleaning stables when necessary, but plenty others avoid too great a portion of stable-cleaning in their lives for no such reason, but because they wish to be *men*, and because life is too short, and human nature too limited, to neglect a continuous and considerable attention to the needs of the mind. Such unqualified talk, from leaders of thought, is indeed discouraging.

Yet in spite of ignorance and injustice, more and more are leaving the ranks of the first-class and joining the second. It is beginning to be seen that it is against Nature for the majority to be where they are; that progress is the life-blood of civilization; that even perfection must keep moving "lest one good custom should corrupt the world."

Non-specialists necessarily belong to the first class. It is all they can do to follow other men at a long distance behind, when trying to do several things at once. Their inspiration, if it comes at all, must come from work for work's sake. Sometimes it does. But does it, and will it, in the majority of cases? Human nature says no.

The farmer's cup of happiness is to be filled to the brim, with a mild dash of diluted theory for flavoring, by regarding work as the end instead of the means. No wonder Mr. Abbott makes a moral question out of this. It needs extraordinary support. But we cannot deceive even ourselves with impunity. Moral laxity inevitably follows moral falsity.

Such principles preserve aristocracy. If it was the exception to find men without some individual superiority, snobishness might die out. But why should not that be? I do not believe in any philosophy of life which does not include the majority. Most men are naturally fitted to excel in some one particular, and should have the opportunity to do so.

Is not T. B. Terry a specialist? Who supposes he devotes one acre of land to one variety of potato, and does nothing else? Who connects Edison with the phonograph only? These are the only proper parallels to the study of one language exclusive of others, or the dative case. A broad basis of subsidiary knowledge is necessary for specialty to amount to much, but it is none the less specialty, for all that.

"A broad-minded man the specialist can never be." Mr. Abbott seems to want to give the word "specialist" a very attenuated meaning, and fight it out on that line. I protest. I understand by the word "specialist" just what is understood by it—a man who understands his business well enough to develop its applications, and who practices only what he thoroughly understands. This specialist is under no influence whatever which narrows him more than the non-specialist. The one practices one department thoroughly; the other, several departments superficially. The influences are different, to be sure, but I cannot comprehend by what sort of mental gymnastics the non-specialist can be made out to have the advantage. It cannot be because he has several irons in the fire, because by that line of reasoning if he studies 36 subjects instead of three, he will be 12 times wiser. It is not because the specialist is like a student who investigates the dative case alone, because the great majority of money-making specialists that we are talking about cannot know one thing thoroughly without being familiar with a great variety of related subjects—more, in fact, than the average non-specialist finds it worth while to bother with, in spite of his numerous requirements.

If, as is almost always the case, the specialist has more or less acquaintance with other things which he might follow for a livelihood, but does not, that does not make him a non-specialist. He does one thing (and the best thing) at a time. That is the main point. As a matter of fact, I have met many more narrow-minded men among non-specialists than among specialists. I wonder why.

"The farmer who devotes all his energies to other things and buys his honey usually has none, as he generally thinks times too hard to buy honey." True at present. But considering the great quantities of fine extracted honey annually sold at the same prices as syrup, it is rather due primarily to false commercial conditions than to any disadvantage in not producing one's own honey.

"Children are crying" for it, and we want it "three times a day, 365 days in the year." I quickly get sick and tired of the finest honey if obliged to eat it at every meal, and have met plenty others who are affected likewise. Is not a little revision needed here?

After being so arbitrary (which I can't help, because I so thoroughly believe in the foregoing), it is rather a relief to find something to be cautious about. I will just give it as one of my notions that Mr. Abbott's argument—"The ordinary every-day work of life must [?] be done, and it is generally done by those who are not specialists"—while good as far as it goes, does not go far. Even now, a large proportion have the choice between specialty and non-specialty in most of their work, and the whole tendency of the age is to keep increasing that proportion. Suppose we all took a notion to be specialists—would stable-cleaning, and milking, and sweeping, and washing clothes, go by default? How about making a relaxation out of them? For instance, I do just as Mr. Abbott does. I clean my own hen-house (I wouldn't have a horse on the place), and do my own house-keeping—all but the starched clothes, which I am proud to say I use as little as possible, B. Taylor and W. Z. Hutchinson to the contrary notwithstanding. As for blacking my shoes to work among the bees, I would be ashamed to think of such a thing. Selah.

The necessary readjustments take some stretching of the imagination. But man is a various animal, and we can't tell what may happen—certainly queer things have happened. But given what I believe to be an impregnable fact—that singleness of purpose and concentration of energy (with any desired subordinate variety) bring out the highest development of man—it seems to me that specialty for all is only a question of time; if so, that end should be kept in view, however distant. The greatest obstacle in the way is the existence of useless luxuries, and in this respect, I admit, human nature seems likely to stand in its own way for a few thousand years to come, more or less. Still, that need not prevent individuals from being sensible; and that a condition is difficult of attainment does not prove it is not the very thing to strive for. "Whatever is, is right," is not sense.

As to how far specialty can be now applied (without reference to its desirability), Mr. Abbott knows, or if he doesn't he ought to, about 25 times as much as I do. It is evident, however, that it is not practiced as much as it can be even now.

To say as some do, "Most people have to work with their hands, therefore should not take mind-work into consideration," is one of those intellectual flim-flams that do not impose on a healthy mind for a moment, but themselves illustrate the necessity for more wide-spread mental training. It does not need much thinking to show that while at present few have the opportunity for liberal education, many may take advantage of the mental benefits of specialty, by which I do not mean factory piece-work, but something which is capable of development, which repays original thought.

Specialty in the country is the only great influence to oppose to the hybrid specialties of the city—factory work, clerking, cab-driving, etc. People can understand how there is no more drudgery in particular farming than in anything else, and that it does not require rising at nerve-depressing hours; but it won't do to puff general farming, for that is the cause of the exodus from country to city. Arvada, Colo.

A New Binder for holding a year's numbers of the American Bee Journal, we propose to mail, postpaid, to every subscriber who sends us 15 cents. It is called "The Wood Binder," is patented, and is an entirely new and very simple arrangement. Full printed directions accompany each Binder. Every reader should get it, and preserve the copies of the Bee Journal as fast as they are received. They are invaluable for reference, and at the low price of the Binder you can afford to get it yearly.

The Names and Addresses of all your bee-friends, who are not now taking the Bee Journal, are wanted at this office. Send them in, please, when sample copies will be mailed to them. Then you can secure their subscriptions, and earn some of the premiums we have offered. The next few months will be just the time to easily get new subscribers. Try it earnestly, at least.

The McEvoy Foul Brood Treatment is given in Dr. Howard's pamphlet on "Foul Brood; Its Natural History and Rational Treatment." It is the latest publication on the subject, and should be in the hands of every bee-keeper. Price, 25 cents; or clubbed with the Bee Journal for one year—both for \$1.10.

Now is the Time to work for new subscribers. Why not take advantage of the offers made on page 445?

PERSONAL MENTION.

MR. HARRY LATHROP, of Browntown, Wis., wrote us on June 25: "Bees are rolling in the honey from linden."

MR. F. A. GEMMILL, of Stratford, Ont., received a visit from the reporter of the Stratford Beacon, which printed a full column about Mr. G.'s bees and apiary. He purchased his first Italian queen in 1864, and the reporter says his apiary is one of the finest and best managed in that region.

MR. E. J. BAXTER, of Nauvoo, Ill., gave us a very pleasant call last week. He is a son-in-law of Mr. Chas. Dadant, and has 250 colonies of bees. He will have some honey this year, having taken several thousand pounds from white clover thus far. Mr. B. is also extensively engaged in strawberry and grape growing.

MR. W. S. G. MASON, of Morenci, Mich., called on us for a few minutes last week. Mr. M. has been a constant reader of the Bee Journal for many years. Though never having met before, it is often the case with many of our readers who call on us, we seem to have been old friends, upon the first meeting. So it seemed when Mr. Mason came in.

DR. GALLUP, of Santa Ana, Calif., has sent us a copy of The Evening Blade—a local newspaper—containing almost a page description of Catalina Island, the great summer and winter pleasure resort of the Pacific Coast. It is 25 miles off the coast of Los Angeles county, and is about 8x21 miles in size. This is the place where it was reported some time ago that a certain enterprising bee-keeper expected to establish a queen-rearing apiary. But we have not yet learned whether the project was carried through or not.

THE PAGE & LYON MFG. CO., of New London, Wis., were given a whole page write-up, with illustration of their manufacturing plant, in a neat local pamphlet issued recently describing the various business enterprises and prominent men of that wide-awake Wisconsin city. H. H. Page is the President of the company; Vice-President, T. Knapstein; Secretary, A. C. Daugherty; and Treasurer-Manager, M. D. Keith. They are one of the largest and best known manufacturers of and dealers in bee-keepers' supplies in the State. Their advertisement runs regularly in the American Bee Journal, just as should all who expect to reach the consumers of aparian necessities.

MR. W. F. MARKS, of Chapinville, N. Y., in a sort of porcupinian article in the June American Bee-Keeper, says that "at no very distant date *Apis dorsata* will be domesticated, and will remain to bless mankind long after *they* and their memories shall be dead and forgotten." The "they" which we have put in Italics refers to all those who in the American Bee Journal opposed the scheme of the Government making the attempt to get "the giant bees" into this country.

Now, we don't see what is to hinder Mr. Marks and his like-thinking friends from themselves going ahead and getting those big bees, and not wait for the Government and what he almost intimates are asinine bee-keepers, to help them. Just think of the glory to be reaped from such an undertaking!

Now, we gladly give our full permission for them or any one else to go right after *Apis dorsata*. And if they deserve a crown for their unselfish work, the American Bee Journal will very willingly do its part in securing it for them, and also a suitable monument to mark their last resting place, or any other deserved "Marks" of honorable recognition that being martyrs to the big sting of *Apis dorsata* entitles them.

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The Langstroth Monument Fund has been languishing for some time. So far we have received only \$2.75, the last 50 cents coming from Brooks D. Cook, of Wilton, N. H. When remitting, Mr. Cook wrote thus:

FRIEND YORK:—I enclose 50 cents as my donation to the Langstroth Monument Fund. May the bee-keeping fraternity respond to this cause with alacrity, is the wish of a novice ex-bee-keeper.

Yours truly,

BROOKS D. COOK.

We are ready to acknowledge in the American Bee Journal all contributions that bee-keepers may feel like sending in. Probably as soon as the honey crop is sold, all will feel better able to spare something for this worthy object. No doubt every bee-keeper in the world will be glad to contribute, and thus have a part in the erection of a suitable monument to the memory of Father Langstroth, to whom modern apiculture owes so much for its past and present success, and promise of future advancement.

Keeping Well.—Editor Hutchinson, in the May Review, says this:

"Keeping well is simply the result of wearing proper clothing, paying attention to the right kind of bathing, breathing pure air in a proper manner, and, most important of all, eating the right kinds of food, which means, of course, using the right kind of drink—pure water."

That is well summed up in one sentence. But how few of us can follow all the prescription!

Selling Honey.—There are many who desire to know just how to realize the most out of their honey, for of what avail is it if a crop is secured and the producer get nothing for it?

Mr. B. Taylor, of Minnesota, has had long experience in almost everything connected with bee-keeping, and here is what he says on the subject of selling honey, in the Farm, Stock and Home:

Forty years ago a merchant, when he wished to replenish his stock, journeyed to some wholesale city and personally selected his goods. That is all changed now, and an army of trained salesmen travel to every nook and corner of the country, each carrying samples of the goods in his line. This is a

costly method of doing business, which the consumers finally have to pay, yet it has some advantages which producers of honey may profit by, as the following experience will illustrate:

Having eight 18-section crates of nice comb honey unsold, we resolved to carry it to a neighboring thrifty village and offer it to supply the holiday trade. On arriving in town we first offered the honey to local dealers. Finding the two leading grocers, one, after much talk, said he would take two crates (about 32 pounds); I expressed surprise that he did not want the eight crates, as there was no white comb honey in town. He said there was but very little call for honey, and that 36 one-pound sections would make all he could probably sell. We said if the dealers did not want it we would go out and sell it directly to consumers by the crate. He smiled deviously, and said that would be the best way.

We visited a second store with about the same result, except he thought one crate would be all he could sell. This left five crates. Taking a sample crate we went into the street and sold the five crates to the first six persons they were offered to, and at a cent more a pound than the dealers were asked. In one hour we were back. The grocers were astonished; they said: "Why can't they ask us for honey? We would not have had call for that much in three months." We told them we could sell 50 crates in two days, and we are confident we could.

The dealers were no doubt nearly right in thinking they would have but little call for honey; it is not an article of necessity, and none but the well-to-do can use much of it these times, and they do not search for it as a rule, but we know by much experience that if fine comb or extracted honey is brought to their notice, they will buy liberally.

To ship our honey mostly to the cities, to be sold in competition, is now a fatal policy for honey-producers. Friends, develop your home markets, have your honey in first-class order, and then solicit orders among your friends in town and country. Many think it humiliating to thus peddle their wares; I confess we do not relish that way of doing business, but would much prefer to be a well fed and well clothed "beggar" of this sort than one to accept alms or go hungry.

Beeswax and Honey.—We notice by the "Year-Book of the United States Department of Agriculture" for 1895, just received, that for the year ending June 30, 1895, there were 90,875 pounds of beeswax exported; and there were imported during the years ending June 30, 1891 to 1895, the following amounts of beeswax: 1891, 379,135 pounds; 1892, 271,068; 1893, 238,000; 1894, 318,660; and in 1895, 288,001 pounds.

There were exported during the year ending June 30, 1895, \$118,873 worth of honey; and there were imported during the years ending June 30, 1891 to 1895, the following amounts of honey: 1891, 47,740 gallons; 1892, 70,103; 1893, 176,147; 1894, 152,643; and in 1895, 67,444 gallons.

Why Bees Swarm.—Mr. Hasty, in his "Condensed View of Current Bee-Writings," in the Bee-Keepers' Review, has this to say when commenting on an article written by Geo. F. Robbins, and published on page 225 of the American Bee Journal:

Mr. Robbins jauntily says he knows why bees swarm; and he can tell us (o'neymost) how to prevent it. Let me see if I can't beat you at that, Friend R. Bees swarm because there is a hole in their hive. Abolish the hole and swarming is cured—I can warrant 'em. Perchance the Robbins' remedy is not quite so illusory as mine; but it may fail sometimes, and mine will not. He takes away the contents of the hive, and leaves the hole—and the bees. The objections are that you have doubled your stock, and you may want to prevent that; you have a lot of hungry babies that must starve, as there are no nurses to feed them; and you have a lot of sealed brood that may chill in a sudden cold spell of weather; and you may get the whole thing scooped by robbers. These combs can indeed be given to weak colonies, but only in a small way; and we want a scheme that covers the whole apary. If he will take away the combs from several hives each day continuously, and put them into a big, warm, tenement hatchery; when the young bees get numerous ladle them a few quarts into each original hive—well, I think that's the direction from which morning is most likely to arise. Perhaps the man who works out the finished details of this may be

canonized as a benefactor. I have never got around to begin the trial, although I have long had the scheme in mind. The outcome of such a hatchery is not increase of colonies, but a lot of nearly empty combs.

Don't think that this article is aught else than one of the most valuable that have been written on this topic. Especially does Friend Robbins get down to "pay gravel" when he says substantially that we cannot at once, and perhaps cannot ever, eradicate the wants of bee-nature; but the line of hope is in the line of supplying these wants in some other way than hap-hazard swarming.

The Poisonous Honey Question.—Recently we published a number of communications on the subject of poisonous honey. We have now received the following from "Novice," who started the discussion :

MR. EDITOR:—I have been specially interested in the discussion of the poisonous honey question. I hope that you will encourage further articles on the subject, until all who have any experience on this line shall have contributed what they know through your columns, so that the materials for a correct opinion may be amassed, and bee-keepers may know what is the real truth in regard to this matter. Theory is one thing, and the real, exact truth may be a wholly different thing. The true way to arrive at a correct conclusion is, to get all the facts well in hand, and then it will be time to frame a hypothesis consistent with all the known facts. My opinion given in a former number of the American Bee Journal, to the effect that nectar gathered from the kalmia was harmless, and that the toxic effects, if any, were the result of ingestion of the "bee-bread" or pollen, perhaps was premature, but I cannot help clinging to that idea until it has been demonstrated to be incorrect. If any of the readers of the American Bee Journal know of any instances of poisoning from the use of honey, I would be glad if, with the consent of the editor, they would report the cases, and at the same time give the answers to the inquiry whether pollen was consumed by the patients as they ate the supposed poisonous honey.

Columbia, Miss.

NOVICE.

Of course, we are willing to give space to more information on this matter, but it would almost seem that the subject has been pretty well canvassed.

Editor Hutchinson, of the Review, is a great man to simmer matters down, or, in other words, to push the pith out of things. Here are a few of his condensed paragraphic "edlets" that appeared in his paper lately :

Advertising of an inefficient sort has been tritely compared to a ladder not quite long enough to reach to the top of the house.

Sealed covers did not give so good results in wintering as did upward ventilation, in some experiments made by R. F. Holtermann.

Foundation is not needed at all times in the sections, so writes Doolittle in the Progressive, but when starters only are used in the sections, separators are needed.

Five-banded bees, according to experiments made by Mr. Holtermann, are below the average as to wintering qualities, are short lived, prolific, gentle unless queenless, and are inclined to rob.

P. H. Elwood, in Gleanings, says that the feeding of sugar as suggested, advised and practiced by Mr. Boardman, would have the effect of throwing hundreds of tons more honey on the market. That is exactly what bee-keepers are now needing above all things.

In liquefying honey, Mr. McKnight spoke of liquefying nearly a ton in one day by the use of a wash-boiler and a cook-stove. Mr. F. L. Thompson thinks that there must be a mistake somewhere. He thinks that one hour for the melting of two 60-pound cans of honey is too short altogether.

To Subscribers Only.—It goes without saying that every subscriber to the American Bee Journal is desirous that its influence and circulation shall increase; it is conceded these results can be brought about by individual effort more quickly than in any other way, and as increase of circulation means continual improvement in quality, quantity and

general benefits to all, the hearty co-operation of our subscribers is invoked.

To this end, the publishers ask each individual reader to send us, on a postal card, the names and addresses of at least five persons whom they absolutely know to be interested in bee-keeping, and are not now among our regular readers. To these names three copies of the American Bee Journal will be sent free; this will allow the paper to be its own advocate, and give every one so receiving it an opportunity to decide whether it is to their interest to subscribe.

We have faith enough to carry out our part. Please send on your names. Address, Geo. W. York & Co., 118 Michigan St., Chicago, Ill.

Questions and Answers

CONDUCTED BY
DR. C. C. MILLER, MARENGO, ILL.

[Questions may be mailed to the Bee Journal, or to Dr. Miller direct.]

Bees That "Run Out" or Deteriorated.

Will a colony of bees get "run out" so the queen will not be prolific? They are in double-walled hives, and wintered out-doors on the summer stands.

J. S. Y.

Belle Plaine, Wis.

ANSWER.—Close in-breeding is not considered good, and if a single colony is kept for a series of years isolated, say five miles from any other colony, it will probably deteriorate or "run out." But if other bees are within a mile or two, the supposition is that there will be a constant admixture. It is a good plan to introduce fresh blood frequently, and if the fresh stock is of the best, there can be no doubt as to improvement instead of running out.

Several Questions on Bees and Honey.

How can I raise honey and no bees? How can I raise bees and no honey? What can I do with the drones after swarming? How many times do bees swarm in a season? I don't understand the bee-business very well, and I want to find out what to do.

A. R.

Eagle River, Wis.

ANSWER.—Very likely you'll be told that you can raise bees but you can only produce honey. I'm not so sure about that, for in each case you cause something to come into existence, and I hardly see why a man doesn't raise butter as well as cows. Certainly we are allowed to speak of raising money, and why not honey? Still, if it is insisted that "produce" is the better word when speaking of honey, I'll try to say "produce" if I don't forget.

You can raise bees without securing a crop of honey, but you can't get the crop of honey without bees. But what you are driving at, I suppose, is to know how to manage so as to secure as much honey as possible without increasing the number of colonies, or, on the other hand, to get as large an increase of bees as possible without caring to get any surplus honey? Much can be done in directing the energies of the bees in one direction or the other, but you must remember that in a bad year, when little nectar can be secured from the flowers, no kind of management on the part of the bee-keeper can make sure of a crop of honey, neither can he secure increase without feeding.

If you want honey, and no increase, give your bees plenty

of room, and keep the honey constantly extracted, and in many cases there will be no attempt at swarming. This will give you the largest returns in honey with no increase, providing the early or white clover and linden harvest is the only source of honey. If, however, the fall flow is considerable, possibly the chief harvest, then you may get better returns by having the bees swarm early so as to have a double force working on the late harvest.

If you work for comb honey instead of extracted, then the problem of keeping down swarming with its consequent increase is a very difficult one. Large hives may do something toward it, but in spite of all you do the bees are likely to swarm. Perhaps the best way for you to do is to count on having the bees swarm once. Then hive the swarm on the old stand, setting the old hive a little to one side to make place for it. In five or seven days remove the old hive to a new location, perhaps 10 feet or more away, and the result of this removal will be that all the field-bees from the old hive, when they return from gathering in the fields, instead of returning to the old hive, will go straight to the spot where it formerly stood, and join the swarm. The swarm thus strengthened will give you the crop of honey, and if the season is very good there may be some yield from the old colony, especially if there is a fall flow.

If increase is your object, there are several ways of managing. One way is to let the bees swarm naturally, and hive the swarm on a new stand. Then hive all after-swarms, if any there be, and if some of them are very weak, give them a frame or two of brood from the first swarm. Sometimes, however, bees refuse to swarm, in which case you may use one of the different plans for artificial increase. Here's one way: Take two frames of brood and bees with the queen, and put them into an empty hive on a new stand, but don't do this till about the time they ought to swarm naturally, say about the beginning of clover harvest. Then not more than nine or ten days later, you can divide the contents of the old hive, putting brood, bees and queen-cells in two or more hives. Two frames of brood well covered with bees will make a fair nucleus. In this way your original colony can be increased to three, four or more. How well they come out will depend on the season, the original strength of the colony and the amount you feed when they can gather nothing.

Probably the best thing to do with drones is to let them alone and prevent too many being reared by having very little drone-comb in the hives. You can cut out the drone-comb and put patches of worker-comb in its place, and you can have all new combs built on worker foundation.

Bees left to themselves will generally send out one swarm in a season, often sending out a second swarm, sometimes a third, fourth, and even a fifth and sixth swarm.

Keeping Bee-Eggs and Royal Jelly.

1. How long will an egg keep, or is there no "keep" to an egg? Must it be in condition to hatch, or become dead?

2. How long will royal jelly keep, to be of good use?

Of course, I mean queen-eggs—if they can be kept as one would keep hen's eggs a certain limit, and then be put in condition to hatch. A. J. W.

ANSWERS.—1. I don't know just how long an egg will keep, but I'm afraid from a very little experimenting that I've done in that direction that there's practically "no keep" to a bee's egg. When it gets so old that it will not hatch, of course it is practically dead.

2. I don't know whether any experiments have ever been tried as to the keeping qualities of royal jelly, but I should have some faith that it might be kept safely out of the hive for a day or two. You can try the experiment by taking from the hive a queen-cell containing a grub and well supplied with jelly, keeping it out of the hive for a time, and then seeing

whether the bees would go on making use of it when returned. Your questions have a direct practical bearing, for if either eggs, or queen-cells containing larvae, can be safely kept out of the hive, then they can be sent by mail.



"Strawlets" Gleaned from "Gleanings."

Centralblatt says foul brood spores can give the disease after being kept seven years.

Great Britain, says British Bee Journal, imported in 1895 honey to the value of \$200,000.

M. S. Thibant, editor of *Le Progrès Apicole*, says honey is used in the manufacture of all the best toilet soaps.

In France there is complaint that honey granulates too slowly this year, making consumers suspect its genuineness.

Gravenhorst says he has often had laying workers in the same colony with virgin queens, the laying workers disappearing when the queens commenced business.

Total sugar consumed in U. S. in '95, 3,899,488,000 lbs.—just about 60 lbs. for every man, woman, and child. Wouldn't the nation be stronger if one pound out of ten had been honey?

Brood-frames filled with foundation usually have a space of $\frac{1}{4}$ -inch left at the sides. Is that desirable when the frames are wired? I have a lot of combs built on foundation that touched the end-bars, and it seems to work perfectly.

I've been anxious for a genuine sample of sweet clover honey. I got some from Editor York that's reliable. Smells distinctly like sweet clover seed. I didn't like it much at first, but it grows on acquaintance. I'd like a crop of it.

Normally, no bee less than two weeks old works in the field, and no bee more than three weeks old does housework; but if necessary a bee five days old can forage, and it can tend baby and build comb when more than six months old.

De Layens reports in *L'Apiculteur* a thorough series of experiments which seems to show that bees ventilate, not to cool the hive, but to evaporate the honey. The number of fanners early in the morning was in proportion to the flow of honey.

When talking about the danger of missing queen-cells in cutting them out, bear in mind that it makes a big difference whether you cut out after natural swarming or after removal of queen without swarming. In the latter case the cells are much harder to find.

Unite a swarm having a virgin queen with a colony having a fecundated queen, whether she lays or not, and Gravenhorst says the bees with the virgin queen will be killed. But remove the virgin queen and sprinkle the bees with salt water, flour, etc., and all will be well.

When it comes to adulteration of wax, America must take a back seat for Germany. Much has been said about the adulteration of foundation; and now comes an enterprising firm at Cologne, boldly advertising *Gewerbe-wachs* (trade-wax) of three grades, at 18, 25, and 31 cents a pound. The best is $\frac{1}{4}$ beeswax; the cheapest is pure *Gewerbe-wachs*.

Renewal of queens. Herr Strutz says in Centralblatt that he thinks strong colonies usually renew their queens annually at the close of harvest, and that prime swarms do the same. That may be partially true; for, naturally, a queen that had laid heavily throughout the season would be more likely to be superseded than one whose laying room had been limited.

A seedsman in Kent, England, as reported in British Bee Journal, banished bees from his neighborhood because of crossing his seeds; but when he found the seeds were insufficiently fertilized he was glad to get the bees back. [It is the same old story over again, and yet some won't be convinced. Keep such stories, as long as they are true, afloat.—ED.]

Question-Box.

In the multitude of counsellors there is safety.—Prov. 11:14.

Hiving Swarms During a Honey Flow.

Query 21.—In hiving prime swarms during a honey-flow, how much foundation do you put in the brood-frames?—ILLINOIS.

B. Taylor—I fill them full.

W. G. Larrabee—Full sheets.

R. L. Taylor—I fill the frames.

James A. Stone—The more, the better.

Dr. J. P. H. Brown—I use full sheets.

W. R. Graham—About one-inch starters.

H. D. Cutting—From three inches to a full frame.

Prof. A. J. Cook—I like them full, on wired frames.

Allen Pringle—That depends. Usually, however, I fill them.

Eugene Secor—Not so much as I used to. About an inch strip now.

J. M. Hamsbaugh—Full sheets, when I can get it, and the frames wired.

Rev. M. Mahin—if I had the foundation I would fill the frames with it.

E. France—We make all swarms by dividing—have no natural swarms to hive.

P. H. Elwood—Full sheets where we use them. We have no swarms, but artificial.

C. H. Dibbern—I use full sheets, as by using only strips I get entirely too much drone-comb.

G. M. Doolittle—From a starter to full sheets, according to the time of year and my desires.

Dr. C. C. Miller—I seldom hive prime swarms, but if I gave them any foundation I would want the frames filled, so as to have no drone-comb.

Emerson T. Abbott—During a rapid honey-flow I should use full sheets of foundation, if I desired to secure the largest possible amount of honey.

G. W. Demaree—I fill the frames if I have the foundation. But, really, I use full empty combs, and have the foundation drawn out in the upper stories.

Mrs. L. Harrison—I have had plenty of combs to give all swarms during the last four years. When they are all used up I will experiment along that line.

J. E. Pond—I usually hive on frames filled with foundation, but use only as many frames as seem to be enough for the swarm; filling up with filled frames, as occasion requires. I use a 10-frame Langstroth hive.

Bee-Keepers' Photograph.—We have now on hand a limited number of excellent photographs of prominent bee-keepers—a number of pictures on one card. The likeness of 49 of them are shown on one of the photographs, and 121 on the other. We will send them, postpaid, for 30 cents each, mailing from the 121 kind first; then after they are all gone, we will send the 49 kind. So those who order first will get the most "faces" for their money. Send orders to the Bee Journal office.

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The material entering into this celebrated knife is of the very best quality; the blades are handforged out of the very finest English razor-steel, and we warrant every blade. The bolsters are made of German silver, and will never rust or corrode. The rivets are hardened German silver wire; the linings are plate brass; the back springs of Sheffield spring steel, and the finish of handle as described above. It will last a lifetime, with proper usage.

Why purchase the Novelty Knife? In case a good knife is lost, the chances are, the owner will never recover it; but if the Novelty is lost, having name and address of owner, the finder will return it; otherwise to try to destroy the name and address, would destroy the knife. If traveling, and you meet with a serious accident, and are so fortunate as to have one of the Novelties, your pocket KNIFE will serve as an identifier; and in case of death, your relatives will at once be apprised of the accident.

How appropriate this knife is for a Christmas, New Year or birthday present! What more lasting memento could a mother give to a son, a wife to a husband, a sister to a brother, a lady to a gentleman, or vice versa, a son to a mother, a husband to a wife, a brother to a sister or a gentleman to a lady—the knife having the name of the recipient on one side?

The accompanying cut gives a faint idea, but cannot fully convey an exact representation of this beautiful knife, as the "Novelty" must be seen to be appreciated.

How to Get this Valuable Knife.—We send it postpaid, for \$1., or give it as a Premium to the one sending us three new Subscribers to the BEE JOURNAL (with \$3.00), and we will also send to each new name a copy of the Premium Edition of the book "Bees and Honey." We club the Novelty Knife with the BEE JOURNAL for one year, both for \$1.90.

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I have clipped 19 queens, and must say the Monette Queen-Clipping Device is by far the best invention ever made, and will be welcome to many bee-keepers as it was to me. I could not do without one now.

DR. GEO. LACKE, Newburgh, Ind.

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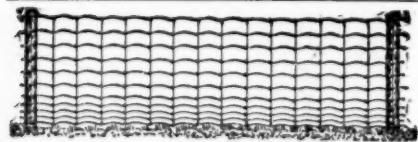
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23A16 Mention the American Bee Journal.



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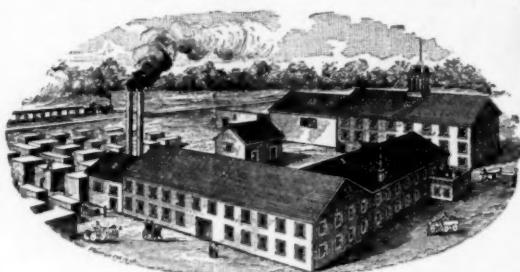
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Mrs. Sallie E. Sherman will begin, in the first number for July, a full account of her 15 years of bee-keeping in Texas. An article from her will appear each week for a number of weeks. They will be of much interest to all, and especially so to Southern bee-keepers.

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Prof. A. J. Cook, of California, author of "The Bee-Keepers' Guide," will contribute at least six good articles before Jan. 1, 1897. He is always interesting and helpful.

A Full Report of the North American Convention

will be published in this paper immediately after the annual meeting, which will be held in September or October next, at Lincoln, Nebr. The Secretary—Dr. A. B. Mason—is now at work on the program, which promises to be the best ever gotten up by the Association. Every American bee-keeper will be interested in the many valuable essays and discussions found in the proceedings of their great annual convention.

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who are well qualified to teach modern bee-culture, will also appear during the next six months. All the foregoing in addition to the

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Only One Cent a Copy for copies of the American Bee Journal before Jan. 1, 1896. We have them running back for about 10 years. But you must let us select them, as we cannot furnish them in regular order, and probably not any particular copies. Just send us as many one-cent stamps as you may want old copies, and we will mail them to you.

Honey as Food and Medicine.—A new and revised edition of this 32-page pamphlet is now issued. It has 5 blank pages on which to write or paste recipes taken from other sources. It is just what its name indicates, and should be liberally distributed among the people everywhere to create a demand for honey. It contains a number of recipes on the use of honey as food and as medicine, besides much other interesting and valuable information. Prices, postpaid, are: Single copy, 5 cts.; 10 copies 30 cts.; 50 for \$1.00; 100 for \$1.75. Better give them a trial. Send all orders to the Bee Journal office.

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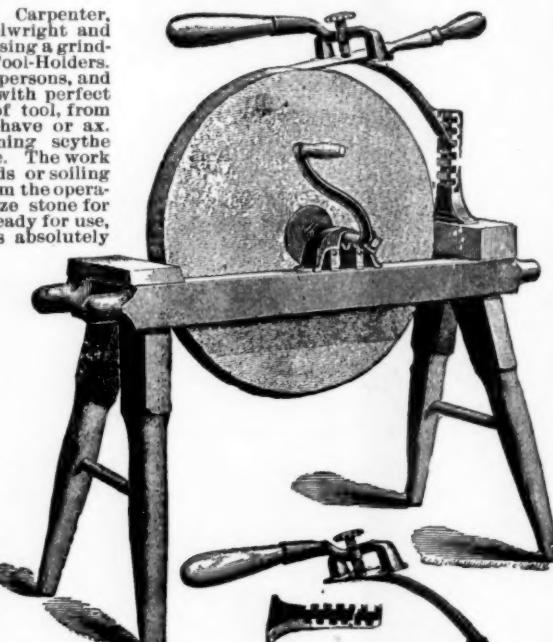
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DIRECTIONS.—The Tool is fastened securely in the Holder by a set-screw and can be ground to any desired bevel by inserting the arm of the Holder into a higher or lower notch of the standard. While turning the crank with the right hand, the left rests on an steadies the Holder; the Tool is moved to the right or left across the stone, or examined while grinding, as readily and in the same way as if held in the hands.

For grinding **Round - Edge Tools**, the holes in the standard are used instead of the notches.

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General Items.

Bees Did Well.

Bees have done very well. The honey season is now over. Dry weather killed all the white clover. **H. ALLEY.**

Wenham, Mass., June 30.

Look for a Big Crop.

Bees are working finely on white and Asike clover. I look for a big crop of honey this year, for we have had plenty of rain. Golden-rod and other honey-producing plants are looking well at present.

I could not do without the American Bee Journal. **JACOB WIRTH.**

Rickel, Ill., June 30.

No Nectar in White Clover.

The honey season in this county (Jersey) is virtually over, unless we have a fall crop, and the season has proved a failure. There was more white clover than we have had for four years, but it did not secrete any nectar, and as that is about all we have to depend upon (having no basswood), we are "in the hole." Sweet clover yielded honey, but there was not enough of it to amount to much. Bees are working on it from morning till night, while we scarcely ever see a bee on white clover.

The prospect for a fall crop is pretty good, as it has been raining nearly every

day this week, 4.25 inches of water having fallen between June 21 and 27, and still raining, spoiling a good deal of wheat in the shock, and corn on the flat lands.

The last four years having been failures here in the bee-business, there is not more than 20 per cent of the bees in the county there were seven years ago; most of the farmers have let their bees die off—it is only those that have fed their bees and looked after them that have any left, and if we do not get a fall crop of honey this season, and the bees have to be fed to carry them through the winter, there will be very few bees in the spring, and less bee-keepers, as the most of them will be out of the business, as the outlook here is not very favorable for bee-keeping; we have nothing to depend upon for surplus but white clover, and if that refuses to yield, we may just as well go out of the business. **H. D. EDWARDS.**

Delhi, Ill., June 27.

The Season—8-Frame Hives.

My bees came through the winter in very good condition; they built up very strong on fruit-bloom, one colony storing some honey in the sections from apple-bloom. White clover bloomed well, and the bees were storing honey in the sections right along, but about May 20 it commenced raining, and has been so wet ever since that bees have done nothing, and the clover is about through bloom-

ing. I have had two swarms—one on May 30 and the other June 8—but if the weather doesn't fair up pretty soon, there will be no more swarming and no surplus.

At this time last season (1895) I had taken 200 pounds of honey from seven colonies, and this season from 14 I haven't taken 10 pounds, with no prospect for any more until fall.

I use the 8-frame hive, and prefer it to the 10-frame for comb honey. Some tell me that 8 frames are not enough, and that bees will swarm too much if kept in 8-frame hives, but my neighbors who keep bees in 10-frame hives, or boxes of all shapes and sizes, have just as much, or more, swarming than I do, and get less honey.

I had a rather singular experience with a swarm last season. On the first Sunday in August a swarm issued unobserved, and clustered and was not seen until they began to break the cluster, when they went straight for a patch of timber $\frac{1}{4}$ mile away. On the next Tuesday morning, about 8 o'clock, they came back and acted as if they were going into the hive which they had issued from, but they clustered and were hived, and it is as good a colony as I have in the yard this season. Some may say that it was not the same swarm that left the Sunday before, that came back, but I am satisfied that it was, for the morning that they returned it had been misting rain until within half an hour before they came, and they came exactly from the same direction the swarm went off. It was a prime swarm with a laying queen.

What has become of the Benton bee-book? I haven't heard anything said about it lately. **W. E. WHITTINGTON.**

Benton, Ills., June 18.

[The extra edition of the Benton book has been issued, and many of them distributed. Any one can get a copy free by writing to his United States senator or representative, in Washington.—ED.]

Bees Working "Like Tigers."

I began the season with 32 colonies of bees, increased to 50 by natural swarming, and have a good show for from 50 to 75 pounds of comb honey per colony for the season. The bees are working like tigers at present, on white and sweet clover.

Success to the old American Bee Journal. **A. WICHERTS.**

Mattison, Ill., July 1.

Gathered No Surplus.

Bees in this part of the country have gathered no surplus honey so far this season. The basswood failed; the trees were covered with bloom, but contained no nectar. In the spring it looked as if we were going to have a good crop of honey, but now it looks differently. We may get a little honey if we get enough rain. **FRANK RASMUSSEN.**

Greenville, Mich., July 2.

Honey-Clovers & Buckwheat SEED FOR SALE.

We have made arrangements so that we can furnish seed of several of the Clovers and Japanese Buckwheat, by freight or express, at the following prices, cash with order:

	5 lb.	10 lb.	25 lb.	50 lb.
Alisike Clover	\$.70	\$1.25	\$3.00	\$5.75
Sweet Clover	.75	1.40	3.25	6.00
White Clover	1.25	2.00	4.50	8.00
Alfalfa Clover	.65	1.10	2.70	5.00
Crimson Clover	.55	.90	2.00	3.50
Jap. Buckwheat	.20	.35	.90	1.25

Prices subject to market changes.

Add 25 cents to your order, for cartage, if wanted by freight.

Your orders are solicited.

GEORGE W. YORK & CO.,
CHICAGO, ILLS.

Sweet Clover in Canada.

At the following prices:

5 lbs.	10 lbs.	25 lbs.	50 lbs.
\$1.00	\$1.60	\$3.75	\$7.25

Also a quantity of Motherwort and Catnip seed. Prices on application.

EGGS for Hatching. Buff Leghorns, Indian Games, & Light Brahmans. Choice Birds. A breeder for 30 years. Prices on application

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Boss bee-escape Warranted the best, simplest and quickest Escape on the market. Sent postpaid to any address for 30 cts. It can be returned at our expense if it is not as represented, or we will send the Escape on trial to any bee-keeper wishing to test it in good faith. We are agents for the **Ferguson Patent Hive** with double-case Super and Wicket-Gate Honey-Board, with the Escape. It is the easiest, quickest hive to handle for the production of comb honey. Address,

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BEGINNERS.

Beginners should have a copy of the Amateur Bee-Keeper, a 70-page book by Prof. J. W. Rouse. Price 25 cents; if sent by mail, 28c. The little book and the Progressive Bee-Keeper (a live, progressive 28-page monthly journal) one year, 65c. Address any first-class dealer, or

LEAHY MFG. CO., Higginsville, Mo.

READERS of this Journal who write to any of our advertisers, either in ordering, or asking about the Goods offered, will please state that they saw the Advertisement in this paper.

Honey & Beeswax Market Quotations.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, and, so far as possible, quotations, are made according to these rules:

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsmeared by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsmeared by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," "No. 1 dark," etc.

CHICAGO, ILL., July 2.—There is little, if any, trade in honey at this time. We quote: Extracted, amber, $4\frac{1}{2}$ to $5\frac{1}{4}$ c. Beeswax, 25 to 27.

PHILADELPHIA, PA., April 22.—We quote: No. 1 white, 9 to 10c.; fancy amber, 8 to 9c.; fancy dark, 7 to 8c. Extracted, white clover, 10c.; amber, 5 to $5\frac{1}{4}$ c.; dark, 4 to $4\frac{1}{4}$ c. Beeswax, 25 to 28c. Comb honey is dull. Extracted in fair demand. Beeswax lower. W. A. S.

BUFFALO, N. Y., April 20.—We quote: Fancy white, 15 to 16c.; No. 1 white, 13 to 14c.; fancy dark, 8 to 9c.; No. 1 dark, 7 to $7\frac{1}{4}$ c. Beeswax, 25 to 28c. Trade very dull and honey not moving, except a few fancy lots; anything dark is hard to sell. B. & Co.

CINCINNATI, O., April 22.—There is no fancy white comb honey on our market. Best white sells at 12 to 14c. in a jobbing way, with a fair demand. Demand is good for extracted at 4 to 7c., according to quality.

Beeswax is in good demand at 25 to 30c. for good to choice yellow. C. F. M. & S.

NEW YORK, N. Y., June 24.—No demand for comb honey of any kind. New crop of Southern extracted is arriving freely, and sells fairly good at 50 to 52c. per gallon for common, and 55 to 60c. per gallon for better grades. Beeswax dull at 26 to 27c.

KANSAS CITY, Mo., June 20.—We quote: No. 1 white comb, 1-lbs., 13 to 14c.; No. 2, 11 to 12c.; No. 1 amber, 11 to 12c.; No. 2, 8 to 10c. Extracted, white, 5 to $5\frac{1}{4}$ c.; amber, 5 to $5\frac{1}{4}$ c. Beeswax, 22 to 25c. C. C. C. & Co.

List of Honey and Beeswax Dealers.

Most of whom Quote in this Journal.

Chicago, Ills.

R. A. BURNETT & CO., 163 South Water Street.

New York, N. Y.

HILDRETH BROS. & SEGELEN,
120 & 122 West Broadway.
CHAS. ISRAEL & BROS., 486 Canal St.

Kansas City, Mo.

C. C. CLEMOMS & CO., 423 Walnut St.

Buffalo, N. Y.

BATTISON & CO., 167 & 169 Scott St.

Hamilton, Ills.

CHAS. DADANT & SON.

Philadelphia, Pa.

WM. A. SELSER, 10 Vine St.

Cincinnati, Ohio.

C. F. MUTH & SON, cor. Freeman & Central avs.

5 per ct. Off to Reduce Stock on all kinds of SUPPLIES.

—COMB FOUNDATION—

which will be sold in lots of 10 lbs. or more as follows: Medium, 38 cts.; Light, 40 cts.; Thin Surplus, 45 cts.; Extra Thin, 50 cts.

Queens—Untested, 75c.; Tested, \$1.00.

W. J. FINCH, Jr., SPRINGFIELD
ILLS.

Mention the American Bee Journal.

Bee-keeper's Guide—see page 447.

The Bee-Keepers' Guide: Or Manual of the Apiary,

BY PROF. A. J. COOK.

This 15th and latest edition of Prof. Cook's magnificent book of 460 pages, in neat and substantial cloth binding, we propose to give away to our present subscribers, for the work of getting NEW subscribers for the American Bee Journal.

A description of the book here is quite unnecessary—it is simply the most complete scientific and practical bee-book published today. Fully illustrated, and all written in the most fascinating style. The author is also too well-known to the whole bee-world to require any introduction. No bee-keeper is fully equipped, or his library complete, without "THE BEE-KEEPER'S GUIDE."

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Early Queens—Tested, \$1.00; Untested, 50c. Sent by return mail.

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Reference—1st National Bank of Beville.
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BY RETURN MAIL, \$1.00 each, or six for \$5.00. Other breeders may sell you queens cheaper, but they can't furnish any better queens, and in many instances you may have to wait weeks before you get them. It costs something to keep a lot of queens on hand in nuclei, but it is worth something to get queens by return mail when you want them. The REVIEW and one Queen for only \$1.50. W. Z. HUTCHINSON,
28Atf FLINT, MICH.

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TO EXCHANGE—200 Egg Incubator, one Green-Bone Cutter, nine Buff Cochon Hens and one Cock. Bees or Honey preferred. P. H. EMERY, Summit, So. Dak.

Queens and Queen-Rearing.—If you want to know how to have queens fertilized in upper stories while the old queen is still laying below; how you may safely introduce any queen, at any time of the year when bees can fly; all about the different races of bees; all about shipping queens, queen-cages, candy for queen-cages, etc.; all about forming nuclei, multiplying or uniting bees, or weak colonies, etc.; or, in fact, everything about the queen-business which you may want to know—send for Doolittle's "Scientific Queen-Rearing"—a book of over 170 pages, which is as interesting as a story. Here are some good offers of this book:

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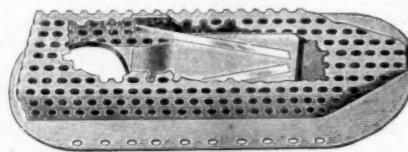
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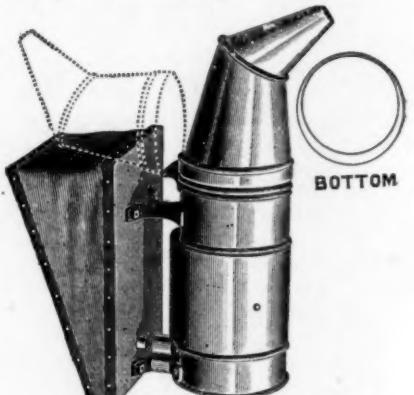
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